

What is claimed is

1. A method of manufacturing nitride based semiconductor light-emitting devices, comprising:

5 forming of a first conductive type nitride based semiconductor layer, an active layer with a p-n junction, and a second conductive type nitride based semiconductor layer by turns on a substrate;

growing of island-like AlGa_N film on said second
10 conductive type nitride based semiconductor layer ;

etching of a surface of said second conductive type nitride based semiconductor layer to make uneven portions on said surface thereof; and

forming of an ohmic electrode on said uneven portion of
15 said surface of said second conductive type nitride based semiconductor layer.

2. A method of manufacturing nitride based semiconductor light-emitting devices , according to Claim 1,
20 wherein said uneven portions are protrusions.

3. A method of manufacturing nitride based semiconductor light-emitting devices, according to Claim 2, wherein said uneven portions are provided with fine recesses on a
25 surface thereof.

4. A method of manufacturing nitride based semiconductor light-emitting devices according to Claim 2, wherein said uneven portions are provided with regions on a surface thereof which are out of stoichiometric compositions.

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5. A method of manufacturing nitride based semiconductor light-emitting devices according to Claims 1, 2, 3 or 4,

wherein said growing of said island-like AlGa_N film on said second conductive type nitride based semiconductor layer employs carrier gases of nitrogen and hydrogen and is carried out by applying a metal organic chemical vapor deposition method at a temperature range within which said AlGa film is grown substantially in two-dimension, and

15 said etching of said surface of said second conductive type nitride based semiconductor layer is carried out by heating said surface of said second conductive type nitride based semiconductor layer in hydrogen or mixed gases of hydrogen and nitrogen.

20 6. A method of manufacturing nitride based semiconductor light-emitting devices according to Claims 1, 2, 3, 4 or 5, wherein said growing of said island-like AlGa_N film on said second conductive type nitride based semiconductor layer and said etching of said surface of said second conductive type nitride based semiconductor layer are continuously carried out once or
25 repeatedly in a metal organic chemical vapor deposition chamber

7. A nitride based semiconductor light-emitting device,
comprising:

a substrate;

5 a first conductive type nitride based semiconductor layer;

an active layer with a p-n junction formed on said first
conductive type nitride based semiconductor layer, said active layer
being made of a nitride based semiconductor layer having a p-n
junction;

10 a second conductive type nitride based semiconductor
layer formed on said active layer, said second conductive type
nitride based semiconductor layer being provided with uneven
portions formed on a surface thereof;

a first ohmic electrode formed on the surface of said
15 second conductive type nitride based semiconductor layer ; and

a second ohmic electrode formed on said first conductive
type nitride based semiconductor layer.

8. A nitride based semiconductor light-emitting device
20 according to Claim 7, wherein said uneven portions are
protrusions.

9. A nitride based semiconductor light-emitting device
according to Claim 8, wherein said protrusions have fine resses on
25 a surface thereof.

10. A nitride based semiconductor light-emitting device according to Claim 8, wherein the surface of said protrusions includes regions out of stoichiometric compositions.

5 11. A nitride based semiconductor light-emitting device according to Claim 7, 8, 9 or 10, wherein said second conductive type nitride based semiconductor layer is made from p-type InGaAlN system materials.

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